

09/14/2016 10:20:30

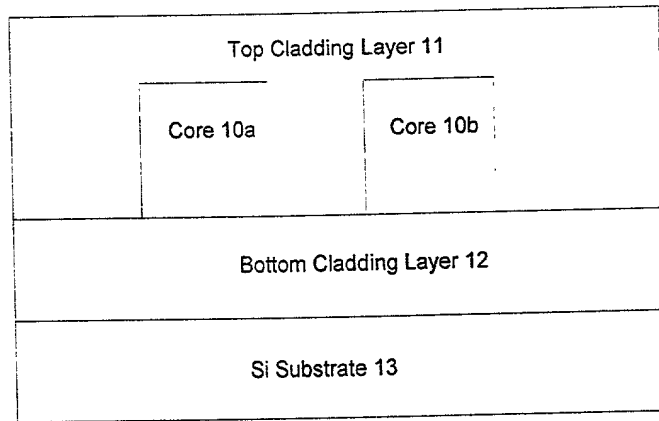


FIG. 1
(Prior Art)

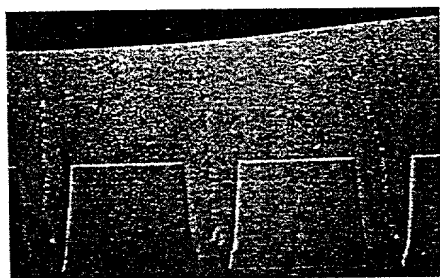


Fig 2 (a) BPSG 2um gap
(print out)

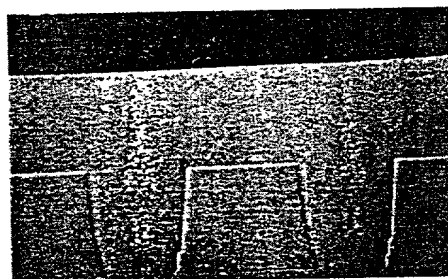


Fig 2 (b) BPSG 4um gap
(print out)

0947438 072704

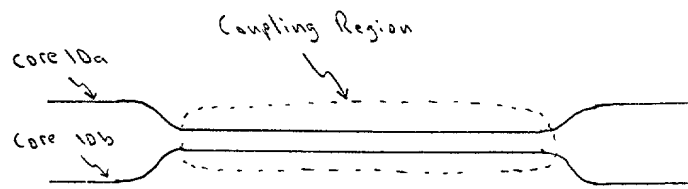


Fig. 3

0947433 072701

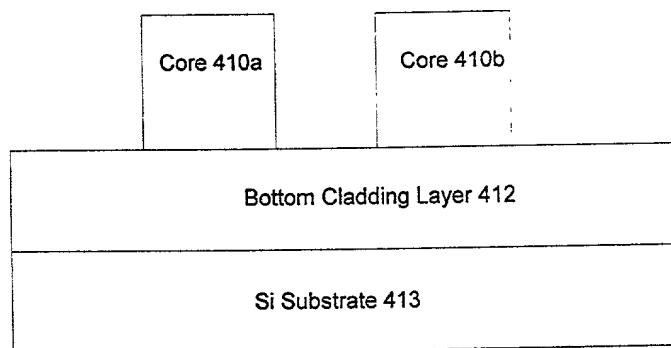


FIG. 4

0947439-0304

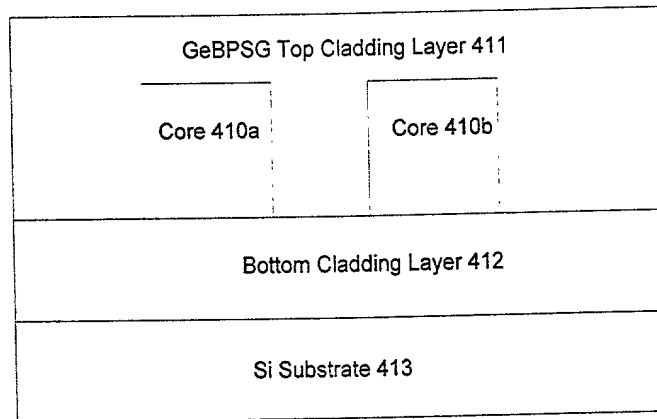
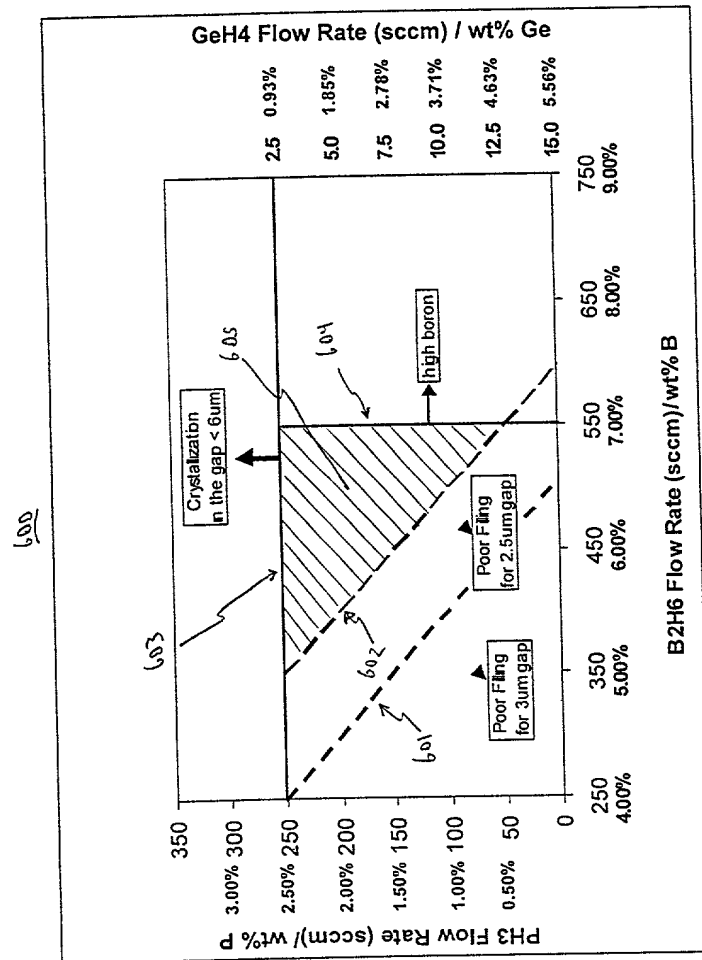


FIG. 5



GeBPSG Doping Window

FIG. 6

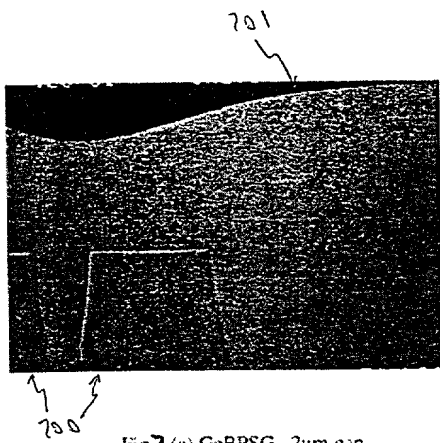


Fig 7 (a) GeBPSG 2um gap

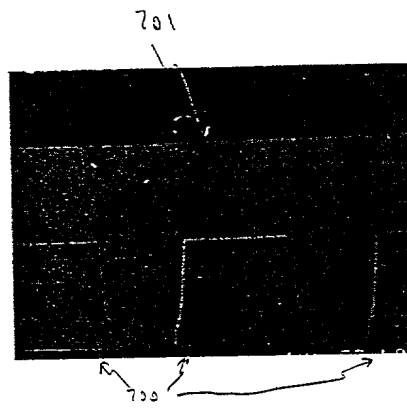
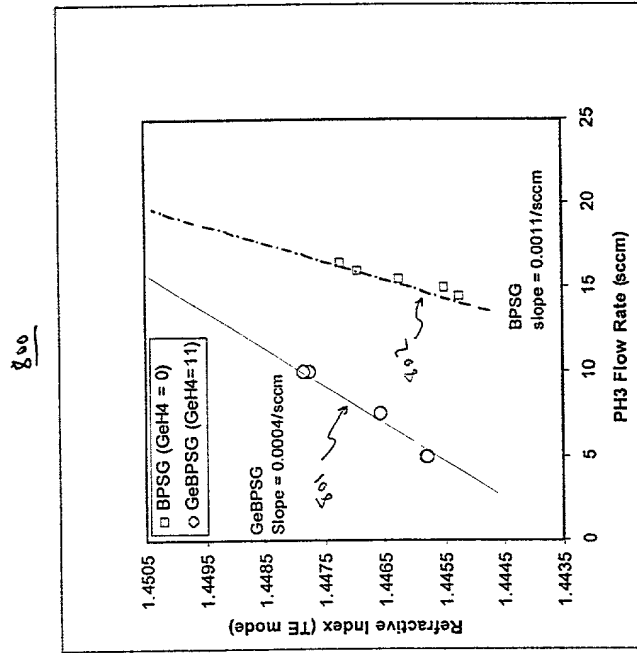


Fig 7 (b) GeBPSG 4um gap



Sensitivity of refractive index to PH_3 flow (GeBPSG vs. BPSG)

FIG. 8

05947438 072704

900

Prepare a plurality of waveguide cores on a bottom cladding layer on a semiconductor substrate

901

Add doping gases (e.g. Ge dopant, P dopant, and B dopant) with SiH₄ and N₂O in a PECVD system

902

Control the ratio of the doping gases to form a GeBPSG top cladding layer having precisely controlled ratios of P dopant, Ge dopant, and B dopant

903

Perform a thermal anneal process with a temperature in a range of 950C to 1050C on the top cladding layer

904

Fig. 9